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Original Article

An Empirical Investigation of Organizational Readiness towards Hospital Autonomy

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Abstract

Background: We aimed to investigate Tehran's University of Medical Sciences (TUMS) affiliated hospitals organizational readiness toward implementing the 'Autonomous Hospitals' program as a change initiative from a managerial perspective in 2020.

Methods: A census covering all eligible managers working in TUMS affiliated hospitals, Tehran, Iran (350 individuals) was carried out. Overall, 281 questionnaires were returned (a 30% non-responsiveness rate). A standard construct was adopted for data collection which was validated through a process of translation- back translation, face validity, and content validity (CVI=0.86, CVR=0.76). The reliability was acquired using Cronbach's alpha coefficient (0.87 and over 0.7). Both descriptive and inferential statistics were employed to draw conclusions .SPSS 26 was used for data analysis.

Result: Total organizational readiness for change (TORC) in hospitals was 60.75%±10.11 showing a state of medium to upper-medium readiness status. Also, the 'Clear mandate and centralized leadership' theme scored the lowest mean (53.02%±15.78) for ORC. 'Hospital accreditation level' (r=-0.14, $P\leq0.05$), 'bed occupancy rate' (r=-0.19, $P\leq0.05$), and 'leadership status' (r=0.26, $P\leq0.001$), also showed significant association with TORC. In addition, 'standardized bed occu*P*ancy rate' ($P\leq0.05$, B=-2.41), a 'male' leader ($P\leq0.05$, B=3.42), and 'academic affiliation' ($P\leq0.$ 1, B=-9.52), were good *P*redictors of TORC based on 'Backward Multiple Linear Regression' analysis.

Conclusion: Full support from hospital and headquarters executives, delegation of sufficient decision-making authority to hospital managers, and implementation of comprehensive performance evaluation criteria were prerequisites for robust hospital autonomy in TUMS-affiliated hospitals.

Keywords: Organizational Change; Decentralization; Administrators; Public Hospitals; Data-driven analysis

Introduction

Change initiatives, aiming at cost reduction, quality improvement, boosting efficiency, and obtaining more market share, are inseparable part of organizations' life cycles (1). A vast number of

these take place in hospitals which consumes about 50% of health expenditures within developed and even over 50% within developing countries i.e., Iran, annually (2). On the other hand, majority of change initiatives (over 70% in some cases) fail (3). The failures are surprisingly due to un-readiness to adapt changes, or the partial implementation of initiatives rather than not being aligned with organizations' strategic direction and goals(4). Thus, the higher the organizational readiness to change (ORC) is, the easier the change adaption will be (5).

Hospital autonomization, as a challenging issue with not a successful background ,and historically, by a negative mindset on it (6-9), was brought to attentions once more by introducing a new change plan entitled 'The framework for autonomous hospitals management' in 2018 (10, 11). The program, which is drawn up based on the localized model of organizational reforms by World Bank Group (WBG) named as Harding-Preker model (10) estates the increased level of authority dedicated to hospital managers to freely handle their financial issues by enabling them to compensate the costs by general and specified incomes that the manager has the full authority on the reallocation measures. As the initiative focus on the managerial role of the CEO, it includes higher levels of market exposure to promote hospital to higher levels of efficiencies. Also, it changes the budget allocation from a totally hierarchal to a more performance-based one. Furthermore, the authority to retain financial residuals remains in the hands of the manager which can result in greater efficiency (11).

According to the results of a study (12), 20 studies aimed at organizational reform of hospitals which covered areas including: the effects that hospital autonomy or any other forms of changes in public hospital governance had on performance indicator, hospital efficiency, financial impact, responsiveness, patient satisfaction, allocation of financial resources, or the impact on middle managers. Also, drawing policy maps, stakeholder analysis, finding obstacles, barriers, challenges and historical events, defining dimensions affecting hospital autonomy were included, too. At the closest match to our study, a study localized and investigated the levels of autonomy dedicated to public hospitals in Tehran (12).

As managers play a key role in success or failure of changes(13) the aim of this study was to investigate managers' perspective on Tehran's University of Medical Sciences (TUMS), Tehran, Iran affiliated hospitals organizational readiness toward implementing the 'autonomous hospitals' policy as a change initiative in 2020.

Materials and Methods

As a cross-sectional study, we investigated the organizational readiness of all of the hospitals (14 hospitals, 7 general, 7 specialized) affiliated to Tehran's University of Medical Sciences toward implementing the 'autonomous hospitals' program from a managerial perspective in 2020. Our target population were all managers in different layers of the hospitals. To categorize the managers, some criteria were employed including,

a) Managers' position in hierarchy in terms of communication level. This was identified through following sub-criteria
   - Number of units under supervision
   - Level and number of the superior mangers who he/she reports to

b) Area of responsibility (AOR) and level of authority given

c) Size of the hospitals (i.e., active bed numbers, staff number, hospital's position in referral system)

Based on the research team's decision, managers were categorized into three levels, including: 1- Top managers (i.e., hospital's senior director, hospital's senior manager, advisors)

2-Middle- leveled managers (i.e., chief financial operators, chief accountants, HR managers)

3- Lower-leveled managers or operational managers (i.e., head nurses, supervisors, insurance and income executives)

Data collection

A census was carried out for data collection. A valid questionnaire was disseminated between

mangers who showed willingness to participate. A written summary of the act entailing all key points was attached to the construct to ensure the full comprehension of the initiative by managers. In case of further ambiguity, verbal communication was taken for granted to provide information. Based on preliminary inquiries, 350 eligible managers were identified. Finally, 281 questionnaires were returned causing a 30% non-responsiveness rate. Meanwhile, the needed sample size was lower than the collected data (N=251) based on a pilot study conducted prior to data collection to ensure the adequacy of the collected data.

Ethical considerations

The study was conducted in TUMS with the ethical code of IR.TUMS.SPH.REC.1398.201.

Construct

The tool was a structured questionnaire entitled 'A Diagnostic Tool for Assessing Organizational Readiness for Complex Change' by Blackman, et al. (14) which is used in different fields e.g., health and hospitals to measure the ORC. Using a quantitative approach, the tool maps the readiness questions in micro level (individual) to macro level (organizational) within six themes each showing a field concerned with ORC. The mean score of ORC dedicated to each theme defines whether we need to improve the field to boost total ORC or not. Also, the scoring was based on each questions' agreement or disagreement with ORC and experts' opinion.

Validity and reliability

As the questionnaire was in English, 'forward-backward' method was employed to translate it into Farsi. To ensure face validity, primary version (after translation) was sent to 12 experts to look for probable linguistic ambiguities to comply with the Iranian health system. In this phase, some changes were made while ensuring the content remains the same. For content validity, the construct (after face validity) was sent again to the same experts to determine content validity ratio (CVR) and content validity index (CVI) which were both higher than the minimum required level (0.86 and 0.76 respectively). Furthermore, to ensure the full comprehension of the questions by respondents, to measure the average time taken to answer the questions (15-20 min), and simplicity of the questions, 37 individuals (pilot study) answered the questions carefully resulting in some other linguistic changes to be applied in contact with the experts. The reliability was acquired using Cronbach's alpha coefficient (0.87 and over 0.7).

Statistical Analysis

Descriptive statistics including mean, standard deviation, range, frequency, and percentage were used to describe results. Also, the value for the mean of total ORC (TORC) was reported in percent. To compare means between two groups, two independent-samples t-test, Mann–Whitney U test, one-way ANOVA, and Kruskal–Wallis tests were used according to the normality test of data (Kolmogorov-Smirnov test for normality) and response type we were looking for. Also, Pearson's and Spearman's correlation coefficient were employed wherever applicable according to K-S test results. Furthermore, the potential confounding effects of other variables were investigated by partial coefficient test. Additionally, to study the variations of dependent variable based on independent variables, multiple linear regression (backward approach) was employed either. To do so, simple linear regression was applied primarily to study every independent variable effect on the independent variable (TORC) one by one; Accordingly, every independent variable with a significance level of below 0.2 (inclusion criterion) was chosen for the next level as the candidate for effectiveness. Next, the candidate variables entered multiple regression model. In this phase, while using 'Backward' approach, the most parsimonious model was selected (15) and those variables having a significance level of over 0.1 were excluded (exclusion criterion). SPSS version 26 (IBM Corp., Armonk, NY, USA) was used for data analysis.

Results

Descriptive statistics

As indicated in Table 1. 13% of managers were seniors (top), 17% middle, and 70% operational or lower managers in terms of position in hierarchy. Most of them were females (68%) and only 7% of managers were academician. Average bed occupancy rate (BOR) was 86.24±13.35 percent. Most of the mangers were staff members (85.35%).

Table 1: Organizational and demographical profile of respondents (managers)

Number of respondents	***281***
Organizational levels (posts) of participants	
Senior	36 (13%)
Middle	48(17%)
Operational or lower	197 (70%)
Gender of managers	
Male	90 (32%)
Female	191 (68%)
Type of hospitals	
General	143 (51%)
Specialized	138 (49%)
University affiliation	
University Professor	20 (7%)
Not University Professor	261 (93%)
Age (years)	44.48 (SD=6.77)
Managerial experience (years)	9.91 (SD=7.35)
Bed occupancy rate (percent)	86.24 (SD=13.35)
Employment (percent)	
Official employee	240 (85.35%)
Semi-official employee	13 (4.76%)
contracted employee	20 (6.96%)
Fixed-term employee	3 (1.1%)
Others (i.e., conscriptions)	5 (1.83%)

As represented in Table 2, mean TORC was 60.75± 10.11 which stands for a medium to upper medium readiness to implement 'autonomous hospitals' program in hospitals from hospital managers' perspective. Also, three themes i.e., 'Central Mandate and Central Leadership', 'Misalignment of Evaluation and Accountability', and 'Decision Making and Capabilities' were scored the lowest mean for ORC compared to the mean TORC respectively. Others were scored higher than the mean TORC.

Table 2: Hospital's readiness to implement 'autonomous hospitals' program in total and by themes

No.	***Domains***	***Mean***	***Std. deviation***
1	Central Mandate and Central Leadership	53.02	15.78
2	Decision Making and Capabilities	56.98	13.48
3	Misalignment of Evaluation and Accountability	54.15	13.29
4	Organizational Focus, Operational Structure and Core Business	63.35	14.38
5	Pattern-Breaking Behavior	63.66	9.69
6	Shared Understanding of Objectives and Outcomes	60.89	16.30
Total	TORC	60.75	10.11

In addition, as shown in Table 3, top managers scored highest in terms of mean TORC (67.42±10.76). Correspondingly, male managers (62.99±10.07), managers having a managerial experience of 5 to 15 years (61.53± 9.21) scored the highest mean TORC in contrast to other levels.

Table 3: Total organizational readiness to implement 'autonomous hospitals' program in respect of organizational and demographic variables (includes statistics)

Variable	*Group(s)*	*Mean*	*Std. deviation*	*statistics*	*P-value*
Hospital Type	General	60.79	9.90	U=10434.5	0.4
	Specialized	60.73	10.36		
Organizational affiliation	Staff/ Official	60.77	10.04	R= 0.02	0.7
	Semi-official	60.07	16.62		
	contracted	60.50	8.57		
	Fixed term	60.87	1.03		
	Others (i.e., conscriptions)	59.43	3.52		
Age	Over 50	61.74	9.06		
	40-50	61.18	9.81	R= 0.06	0.37
	40 or below 40	61.29	9.98		
Accreditation	A+	48.18	14.85	R=-0.14	0.01
	A	61.08	9.84		
Managerial post/ Status	Top	67.42	10.76		
	Middle	61.68	8.47	R=0.25	≤0.001
	Operational/lower	59.38	9.99		
Gender	Male	62.99	10.07	T=2.53	0.01
	Female	59.73	10.01		
Academic affiliation	Academician	63.53	11.57	T=1.27	0.2
	Non-academician	60.55	9.98		
Bed Occupancy Rate (BOR)	Below 85%	62.51	11.26	R= 0.19	0.001
	85% and above	59.99	9.48		
Managerial experience (years)	5 years or less	60.08	9.48	R=0.02	0.73
	5-15	61.53	9.21		
	Over 15	61.20	10.92		

Inferential Statistics and multiple (backward) linear regression

According to Table 3, the results of Man Whitney U test indicated not a significant difference between general and specialized hospital in terms of TORC (*P*=0.4). However, the result of two independent-sample t-test showed a significant difference in TORC between both genders (*P*= 0.01). In contrary, no significant difference was observed between academicians and non-academicians (*P*=0.2).

Additionally, Pearson correlation coefficient test stated a weak, reverse, but significant relationship (*P*= 0.01, Coeff= -0.14) between TORC and hospitals' accreditation level as it promoted to higher level, the TORC would decrease 0.14 units. On the other hand, no significant relation was found among TORC with nor managerial experience (*P*= 0.73) neither age (0.37).

Furthermore, Spearman correlation coefficient test denoted a weak, negative, but significant relationship (*P*= 0.001, Coeff= -0.19) between TORC and BOR. In other words, despite the increase in BOR beyond 85%, TORC would decrease 0.19 units. Similarly, a weak, totally meaningful, but direct (positive) relation (*P*≤0.001) was

between TORC and managerial post/ statues as we moved upward in the hierarchy from operational to middle and consequently from middle to top, a significant increase in TORC (Coeff= 0.25) by each promotion was evident. Contrary to others, no correlations were observed within TORC and organizational affiliation (P= 0.7). Furthermore, partial correlation coefficient test results did not show any changes in meaningfulness of previous findings (Table 4.).

Table 4 illustrates simple linear regression results. According to the table, variables including gender, accreditation level, BOR, and managerial status/post were chosen as candidates of effectiveness (P≤0.2). Meanwhile, regression coefficient (RC) represent change in the dependent variable due to one unit change in value or change in the category of independent variable when other factors remain the same. To exemplify, a RC of 2.51 constitutes a 2.51 unit increase in TORC when BOR decrease from an 85-percent occupancy rate to a level of 85% or below while other factors remain the same.

Table 4: Simple linear regression results (inclusion criterion, *P* below 0.2), and partial correlation coefficient test results

Variable	*level*	*Partial Correlation*	*Coefficient*	*CI (95%)*		*P. level*	*P. variable*
				Lower	*Upper*		
Hospital Type	Specialized hospital	-	-	-	-	-	0.96
	General hospital		0.055	59.03	62.42	0.96	
Accreditation	Class A+	-0.15	-	-	-	-	0.002
	Class A		12.85	40.18	56.18	0.002	
Bed Occupancy Rate	Over 85%	-0.24	-	-	-	-	0.05
	Equal or Below 85%		2.51	58.56	61.42	0.05	
Managerial experience	Over 15 years	-0.03	-	-	-	-	0.56
	5 years or less		-1.12	58.09	64.29	0.56	
	5-15 years		0.33	-4.89	2.65	0.85	
Organizational affiliation	Staff/ Official	0.11	-	-	-	-	0.99
	Others (i.e., conscriptions)		-1.34	-10.44	7.76	0.77	
	Fixed-term employee		0.09	-11.61	11.8	0.98	
	contracted employee		-0.26	-5.07	4.53	0.91	
	Semi-official employee		-0.69	-6.44	5.04	0.81	
Age	Over 51	0.002	-	-	-	-	0.95
	40 or below 40		-0.44	-4.15	3.27	0.81	
	40-50		-0.55	-4.02	2.9	0.75	
Managerial post	Top	0.26	-	-	-	-	≤0.001
	Operational or lower		-8.03	-11.64	-4.42	≤0.001	
	Middle		-5.73	-10.09	-1.37	0.01	
Gender	Female	-	-	-	-	-	0.01
	Male		3.26	5.79	0.72	0.01	
Academic affiliation	Professor/ Academic	-					0.2
	Non-academic		2.98	7.6	-1.62	0.2	

The candidate variables, chosen in previous part, entered multiple linear regression model as indicated in Table 5. Using the 'Backward' approach, all those variables acquiring a significance level of over 0.1 were excluded. Finally, four variables consisting of gender, accreditation level, BOR, and managerial post were chosen to have meaningful impact on the variations of the TORC (P≤0.1). Additionally, to ensure model validity, the normality, homoscedasticity, and independency of the residuals were tested and approved.

Table 5: Multiple linear regression using 'Backward' approach (exclusion criterion, *P* over 0.1)

Variable	*P-value (variable)*	*Regression Coefficient (B)*	*CI*	
			Higher	Lower
Gender (Base: Female)	0.07	2.47	5.16	-0.21
Accreditation level (Class A+)	0.003	-13.28	-4.67	-21.89
Bed occupancy rate (Over 85%)	0.04	2.64	-0.83	-5.19
Managerial post (Top)	≤0.001	-3.18	4.94	1.42

Discussion

The results indicated that most of the managers were females and those aged 44 to 45. The mean BOR was over 85 percent. The mean TORC was 60.75 percent which was almost moderate. While the accreditation level and BOR were negatively related to TORC, the association between TORC and managerial status/post was positive. Meanwhile, multiple regression results approved the significant impact of gender, accreditation level, managerial status, and BOR in predicting TORC. Similarly, there was higher levels of readiness perceived by middle and top managers toward high reliability organization program to be implemented in hospitals (16), while a significant difference did exist between the score of high reliability organization and demographic variables i.e., manager's age, experience, and managerial level either.

Deceptive statistics

According to results, three themes including 'Central Mandate and Central Leadership', 'Misalignment of Evaluation and Accountability', and 'Decision Making and Capabilities' marked the lowest scores compared to TORC. This necessitated to adopt preparatory measures before starting any new change initiatives. To explain more, central mandate and leadership denotes how well three questions concerning 'What is needed?', 'Why it is needed?' and 'How all are laid within a well-articulated policy"? This specification shows the extent of importance to which the senior levels gives when they face with change plan (14, 17). Having the lowest score, this theme, explain how concerned managers across hospitals were as they saw the change was not properly taken into consideration by senior leaders with or beyond hospitals, or, the change was not thoroughly fit into policies and daily practices. A study defined stakeholder engagement and transparently articulating the change initiative within hospitals' strategic and operational plan were the leading factors in leveraging ORC (18). Also, the senior managers support from technology- affiliated changes (implementing RFID system) was necessary for change to be successfully executed (19). Moreover, another study observed lack of senior leaders' support and vague action plan as two barriers obstructing the way that change was progressing in (20).

The theme 'Misalignment of Evaluation and Accountability' generally talks about the 'absence of a realistic evaluation system' which entails a tendency of overestimating achievements, does not apply due criteria for evaluation, or measure outcomes unappropriated for studying impact of the change. This may result in a misalignment of evaluation and accountability toward acquired results encouraging the adoption of non-compliance. To address the concern, establishing appropriate criteria, defining what needs to be assessed, and whether it provide us valid information to make conclusions or not are vital (14, 17). As the second lowest marked area, it seems manager were afraid of such issues. One of the main concerns regarding hospital autonomy is the 'tendency to gain more income at all costs' which might sacrifice other measures of service

care including quality, access, and affordability of care. To this far, multiple studies (21-23) have concluded that hospital autonomy does not necessarily comply with higher efficiencies or mindful investments, however, it can cause induced demand and negatively affect UHC. On the other hand, selecting indexes such as 'adopting a sustainable revenue approach' in hospitals or 'reaching UHC targets' can act as proper criteria for judgments (24-27).

The third theme in need of enhancement was 'Decision Making and Capabilities'. The theme deals with the extent to which managers are given authority in making decisions (14, 17). A study about hospital autonomy in 17 countries, showed despite having an executive board, hospitals' autonomy was rapidly violated by ministries of finance and health (28). In addition, in another study indicated challenges due to lack of appropriate authority dedicated to 'board of trustees hospitals' initiative as their authority was neutralized by limitations in human-resource deployments. This not only resulted in lack of high-competency staff at workplace, but also it caused financial resources to be spoiled by not being able to hire personnel with related experience and knowledge (7). So, successful autonomy is equal to enough delegated authority and required information to hospitals by superiors.

Inferential statistics and multiple linear regression

Male managers acquired significantly higher TORC compared to female which contradicts two other studies in the same field. Also, no significant correlation was found between TORC and age which was in opposite direction of other two studies each showing different patterns of impact on ORC by age (29, 30).

Results showed a reverse relation between BOR and TORC. This might be due to more working hours or higher workloads because of increased occupancy rate, which means more patients to be cared. According to a study investigating the relationship between overcrowding and anti-depressant drugs uptake, following a six-month period, nurses exposed to a 10% higher BOR than the standard level, showed a significant increase in drugs' uptake. This even much worsened by more increase in BOR as they were taking higher doses or new treatment approaches with stronger medications (31). As emotional exhaustion was a determining factor in job satisfaction of nurses (32) we can conclude that higher BOR may result in more stressed situation and might have decreased the readiness to implement the change in hospitals with BOR of over 85%.

Conclusion

Senior managers' support, appropriate delegation of authority according to the responsibilities, adopting comprehensive evaluation mechanisms which dedicate enough time for the initiative to come up with lasting results were the main issues need to be considered by policymakers to avoid partial implementation of the initiative. Also, conducting pilots before initiating the main change and establishing innovative groups in hospitals are highly suggested to boost the ORC. Since a significant difference existed between genders in terms of TORC, it is highly suggested to adopt gender-based investigations to add conclusiveness to change management process in any further studies.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of Interest

The authors declare that there is no conflict of interests.

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